

REMARKS

In this Amendment, Applicants have amended Claims 1, 4, 7, 11, 20, and 21. Applicants have also added new Claim 25 which depends from independent Claim 20. Claim 1 has been amended to recite "comprises" rather than "includes," Claim 4 has been amended solely to correct antecedent basis, and Claim 21 has been amended solely to correct a typographical error. Claim 7 has been amended to further define the structure of the groove on the second surface. Claim 11 has been amended to require each of said interleaved spiral flow channels comprises a first end and a second end, wherein said first ends are closer to a control axis of said separation disks than said second ends, and wherein the second end of at least one of said interleaved spiral flow channels is in fluid communication with the first end a different one of said interleaved spiral flow channels. Claim 20 has been amended to require each of said spiral flow paths comprises a first end and a second end, wherein said first ends are closer to a control axis of said plates than said second ends, and wherein the second end of at least one of said spiral flow paths is in fluid communication with the first end a different one of said spiral flow paths. Support for amended Claims 11 and 20 can be found at least in Figure 4 of the application as originally filed. The amendments add no new matter and are fully supported by the specification and claims as originally filed.

Applicants also note that Claims 9 and 10 were not examined. Claims 9 and 10 were not subject to a restriction requirement. Thus, Applicants respectfully request that Claims 9 and 10 be examined.

Discussion of Claims Rejected Under 35 U.S.C. § 103(a)

The Examiner has rejected independent Claims 1, 4, 11, and 20 under 35 U.S.C. §103(a) as being obvious over Nunogaki (U.S. Pat. No. 4,968,428) in view of ITO (U.S. Pat. No. 4,414,108). Of the claims, Claims 1, 4, 11, and 20 are independent.

The Examiner acknowledges that Nunogaki does not disclose at least one of the plurality of plates comprising at least first and second interleaved spiral flow channels formed therein, wherein each of said spiral flow channels includes a first end and a second end, wherein said first ends are closer to a control axis of said plate than said second ends, and wherein the second end

of said first spiral flow channel is in fluid communication with the first end of the second spiral flow channel. The Examiner, however, contends that ITO discloses the above structure which is missing from Nunogaki.

The Examiner cites the Abstract and Figure 7 of ITO as disclosing a flow-through continuous countercurrent chromatography system and more specifically of the plates having interleaved spiral flow channels formed therein wherein the flow channels include a first end and a second end wherein the second end of the first spiral flow channel is in fluid communication with the first end of the second spiral flow channel. ITO, however, discloses a much different structure. The device in ITO is used to separate two immiscible solvent phases that are inserted in the middle of a coil where the less viscous and lighter phase advances toward the head of the coil and the heavier and more viscous phase advances toward the tail of the coil. *ITO* at Column 3, lines 9-19. For example, blood is inserted into the middle of the coil and red blood cells advance toward the head and plasma is separated at the tail. *ITO* at Column 3, lines 27-29. Although ITO shows multiple interleaved fluid coils, the coils of ITO are not connected together. Each operates independently of the others. The specification states that an outlet tube 72 is connected to the large diameter end of each coil and another outlet tube 73 is connected to the small-diameter end of a coil. *ITO* at Column 6, lines 20-27. This is also evidenced by Figures 7 and 9, which shows multiple coils that are not connected to one another. Each coil operates independently from and is not in fluid communication with any other coil.

In fact, given the purpose of the ITO device, the second end of one coil cannot be connected to the first end of another coil or the device would not function properly. Connecting the coils in ITO as claimed would result in the red blood cells in the head of the first coil mixing with the plasma which is in the tail of the second coil – precisely the opposite of what ITO is designed to accomplish. Therefore, ITO does not disclose multiple interleaved coils in fluid communication with one another and it would not have been obvious to do so because the device would not function as intended.

For these reasons, Applicant respectfully submits that Nunogaki in view of ITO and the remaining prior art of record do not render independent Claims 1, 4, 11, and 20 obvious, and that Claims 1, 4, 11, and 20 are in condition for allowance. Furthermore, although Applicant does not

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necessarily agree with the characterization of the cited art with respect to the dependent claims and respectfully submits that Claims 2, 3, 5-10, 12, 21, and 25 are in condition for allowance because of the features which they inherit from Claims 1, 4, 11, and 20 and because of their own features.

Conclusion

Applicant has endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. In light of the above amendments and remarks, reconsideration and withdrawal of the outstanding rejections is respectfully requested. If the Examiner has any questions which may be answered by telephone, he is invited to call the undersigned directly.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.


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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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